

PRELIMINARY REPORT OF FOREST INSECT CONDITIONS
IN CALIFORNIA

November 1960

There has been a marked improvement in the forest insect situation in California over that prevailing a year ago. Several factors are believed to have contributed to this improvement, weather being among the most important. Precipitation from March through June, at 10 key weather stations in timbered areas from Fort Jones in the north to Grant Grove on the south, was almost normal (96 percent) this year. In 1959 the precipitation during the same period was only 34 percent of normal. An additional factor which slowed down and delayed bark beetle emergence was the very low temperature in April and May. Aggressive control action taken on most of the major outbreaks late last winter and early this spring helped to keep the beetles in check. And prompt action to salvage fire-injured timber in most of the major 1959 burns has greatly reduced the insect potential in these areas. We had fewer lightning-struck trees and less abundant snow-broken material in 1960 than in 1959.

The Cooperative Forest Pest Detection Survey program in California continued to improve in 1960. A total of 680 insect reports had been received by October 15, compared to 407 received one year ago. This was an increase of 273 or 67 percent. Several new insects were detected, and reports on others showed an extension of the known range, or new host records. Although the total number of reports increased, there was a considerable reduction in the number of reports received for ips, and for ips in combination with the western pine beetle (table 1). In contrast 23 detection reports on seed and cone insects were received this year as compared to last year.

This report on conditions is a digest of all available information obtained from cooperators outside the Station, combined with information gathered by our own staff. Some of the observations resulted from ground surveys and others from the air. The conditions reported are those prevailing on October 31; thus our report is probably conservative, as far as the picture for the entire year is concerned.

A brief summary of highlights for the 1960 season follows. The burned areas will be considered separately.

Western Pine Beetle

Although there has been considerable improvement in the western pine beetle situation statewide, certain problem areas still exist where action should be considered. These include an area around Lava Peak on the Lassen National Forest, where group-killing is occurring in virgin ponderosa pine timber and the township between Egg Lake and Round Mountain on the Modoc National Forest where heavy loss is decimating the residual stand. Other critical areas are along the South Fork of the Merced River and the eastern perimeter of the Hillhouse burn. The most critical area statewide appears to be around Eshon Valley in mixed private, national forest, and national park ownership on and adjacent to the Sequoia National Forest and the Sequoia National Park. A program of control was attempted in this general area last spring but only a portion of the total area was treated.

In southern California, the western pine beetle in Coulter pine continues to be aggressive around Julian, Lost Valley, Aqua Tibia and May Valley, where no control has been attempted. New outbreaks of epidemic proportions have been reported from Baldy Mountain on the San Bernardino National Forest, and at Morgan Hill and Jeff Valley near Palomar Mt. on the Cleveland National Forest.

Ips

Although ips damage to ponderosa, Jeffrey and Coulter pine has shown a marked reduction statewide, there are still some areas where it shows signs of aggressiveness. In most cases it is associated with attacks by the western pine beetle, particularly around burns. The most critical ips area in the State is west of McCloud and on the Lava burn where heavy loss is occurring in knobcone pine. Other aggressive infestations occur in Jeffrey pine near Portola, in young ponderosa pine adjacent to the Hillhouse burn, and in Indian Canyon on the Cleveland National Forest. There are also several large groups of ips-killed knobcone pine in the North Coast area.

Areas where both ips and the western pine beetle were very destructive last year and where aggressive control action was taken are much improved this year. These include the Hat Creek and McCloud areas and the Stanislaus and Sierra National Forests. Only on the Sierra, around Bass Lake, does there seem to be any need for considering continued control action.

Mountain Pine Beetle

There appears to have been very little reduction in loss from this insect in ponderosa and lodgepole pine, but much less activity in sugar pine statewide. Heavy loss is continuing in second-growth ponderosa pine stands in the Warner Mountains on the Modoc National Forest, with the heaviest concentration in the Joseph Creek Basin.

Losses in lodgepole pine continue heavy in the Skunk Cabbage Creek area on the Modoc National Forest; Bunchgrass Meadows, Lassen National Forest; and Dry Burney Swamps. Some improvement was noted in the infestation at Tuolumne in Yosemite National Park, in the Military Pass area on the Shasta National Forest where control has been undertaken, and at Badger Flat, Lassen National Park.

No aggressive outbreak has been reported in sugar pine, in the State.

Jeffrey Pine Beetle

Some increase in loss in Jeffrey pine has shown up on the eastside of the Plumas National Forest and around Blacks Mt. on the Lassen National Forest and the north edge of the Lassen National Park.

The Fir Engraver

Losses from this insect in white fir and red fir appear to have risen sharply this year. Areas of heavy loss were observed on Hatchet Mountain, Hatchet Creek, Burney Creek, Siskiyou Mt., Mt. Eddy, Fort Bidwell Indian

Reservation, and throughout the Warner Range on the Modoc National Forest. Similar conditions prevail in fir stands on the eastside of the Plumas National Forest, in the Lake Tahoe area, and southward generally through the Sierra.

Douglas-fir Beetle

Douglas-fir beetle damage remained at a low level with no significant outbreaks reported. Last year Arcata-Redwood Company had a serious infestation of the Douglas-fir beetle in windthrown timber in the Bald Hills. Prompt salvage of this material apparently reduced this hazard.

Douglas-fir Engraver

Douglas-fir engraver damage to Douglas-fir was much reduced from a high level last year in the North Coast area.

Lodgepole Needle Miner

Populations of the lodgepole needle miner remained high in the upper Tuolumne River drainage of Yosemite National Park except in areas where control was conducted last season. Additional spraying of high-use areas is contemplated for the summer of 1961. A closely related needle miner continues in epidemic status at Sentinel Meadows on the Inyo National Forest.

Spruce Budworm

Heavy feeding was observed in white fir in the Warner Mts., Modoc National Forest. This has resulted in some top-killing in young trees in the Horse Mountain area. A recent detection report, which has not been checked, indicates damage like that done by the budworm near Rush Creek on the Modoc National Forest. This is about 25 miles west of the Horse Mt. infestation in the Warner Range.

Large Aspen Tortrix

Heavy feeding on aspen by this insect was observed around Homestead Flat and Long Valley in the South Warner Mts. on the Modoc National Forest. This is a new locality record for this insect, and it is the first time an epidemic of the tortrix has been found in California.

Reproduction Weevil

The pine reproduction weevil is causing serious damage in a pine plantation in the Wright Creek area on the Stanislaus National Forest where control action was taken last spring.

Cone and Seed Insects

Again this year this group of insects has taken a serious toll of the potential seed crop in various coniferous species. Probably the heaviest losses occurred in Douglas-fir in the North Coast, where the Six Rivers National Forest reports over 75 percent of the cones picked were infested.

and the cones had less than 2 sound seeds per cone. Simpson Redwood Company, usually a heavy buyer, quit buying cones completely because the quality was so low. Other private timberland owners in the Redwood region all reported similar results.

Burns

Current survey information on the major 1959 burns indicate that there are no critical infestations that we know about at this time. However, some indications of recent group-killing have begun to show up around some of the burns. Wherever this is happening, a ground examination should be made to determine the exact status of the infestation and the need for follow-up action.

A short resume of insect conditions on the 1959 burns in California follows:

1. Hillhouse Burn, Lassen N.F. - Several hundred ponderosa pine are currently infested with western pine beetle and ips on the eastern perimeter of the burn in green timber. Fading trees are mostly merchantable and in groups of 10-100 trees. Direct control would be advisable on this area.

2. Follard Flat Burn, Shasta-Trinity N.F. - Some new fades are scattered around the perimeter of the burn, but most of these were fire-scorched prior to attack. There are very few current fades in green timber outside the burn perimeter.

3. Lava Burn, Modoc N.F. and Shasta-Trinity N.F. - Thousands of knobcone pine are being killed inside the burn. Flatheads were found in knobcone when examined earlier, but this magnitude of kill is believed to be caused by ips. There are a few faded sugar pine around the burn perimeter, but generally the loss is light.

4. Ward Burn, Plumas N.F. - No noticeable insect activity at this time.

5. Twin Burn, Plumas N.F. - A few new ponderosa pine fades are showing on the NW perimeter of the burn in an area which was inaccessible for salvage-logging.

6. Lights Creek Burn, Plumas N.F. - Only a few scattered fades in some green islands in the burn at this time.

7. Charles & Clio Burns, Plumas N.F. - Very little insect activity on the burn perimeter. Ips are killing young Jeffrey pine outside the burn on private land near Portola.

8. Mountain House Burn, Tahoe N.F. - Some evidence of ips-western pine beetle activity along the southern and western perimeter.

9. Icehouse Burn - Eldorado N.F. - Some ips-western pine beetle activity in ponderosa pine beginning to show up around the southern edge of the burn.
10. Cold Creek Burn, Eldorado N.F. - No unusual insect activity noted.
11. Marsh Mill Burn - No unusual insect activity noted.
12. Nelson Cove Burn - No unusual insect activity noted.
13. Jones Burn, Shasta-Trinity N.F. - Current western pine beetle activity in ponderosa pine along the eastern perimeter of the burn. This is a definite problem area requiring an appraisal.
14. Frethy Burn, Shasta-Trinity N.F. - Losses continue at a persistent but moderate level along the south and west perimeter of the burn.
15. Ramshorn, Shasta-Trinity N.F. - Some ips killed-ponderosa pine on lower northwest slope; extensive ips-killed knobcone pine.
16. Pole - A few ponderosa pine killed early this summer. Fewer fresh fades in mid-October.
17. Hyampom - Flatheaded borer-killed trees beginning to show up.
18. Rarick - 10 ponderosa pines and 2 sugar pines - young sawtimber killed in early summer. Little merchantable or pole-size timber threatened.
19. Sulphur, Klamath N. F. - Not examined.
20. Mine - Six Rivers N.F. - Some Douglas-fir beetle attacks in scorched trees were noted in strip cruise run in mid-July. Observed 25 fresh fades along the lower perimeter on private land in early September.
21. Butter - Mendocino N.F. - Low level of activity in early June.
22. Trough - Mendocino N.F. - Low level of activity in early June.
23. Willits Burn, Mendocino County - An infestation of the Douglas-fir beetle in Douglas-fir developed on this burn early in the summer. All infested trees were salvaged which is expected to solve this problem.
24. Browns Flat, Angeles N.F. - A small island of about 32 acres of virgin ponderosa pine burned over in late July 1960. An appraisal in mid-August showed two trees infested with the western pine beetle. A subsequent appraisal late in October showed 17 infested trees.

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Table 1.--Comparison of pine bark beetle detection reports received May through September in 1959 and in 1960.

<u>Insect</u>	<u>Number of Reports Received</u>	
	<u>1959</u>	<u>1960</u>
Western pine beetle alone	19	32
Ips alone	38	22
Western pine beetle & Ips combined	34	5
Mountain pine beetle	16	10
TOTAL	107	69

Table 2.--Table of Current Insect Infestations Requiring Action

<u>Project Area</u>	<u>Location</u>	<u>Insect species</u> ^{1/}	<u>Host</u> ^{2/}	<u>Recommended Action</u>
<u>Northern California</u>				
<u>Areas requiring initial action</u>				
Hillhouse Burn	Tehama Co.	Db-Ips	PP	Salvage & chemical treatment
Lava Burn	Modoc Co.	Ips	Knobcone pine	Surveillance
Egg Lake-Round Mt.	Modoc Co.	Db	PP	Salvage
Lava Peak	Lassen Co.	Db-Dj	PP-JP	Salvage
Warner Mts.	Modoc Co.	Aspen tortrix	Aspen	Appraisal
Modoc N.F.	Modoc & Lassen Cos.	Spruce budworm	WF	Appraisal
Wrights Creek	Stanislaus NF	Rw	PP-JP	Appraisal

^{1/} Db - Western pine beetle
 Dm - Mountain pine beetle
 DDj - Jeffrey pine beetle
 Dp - Douglas-fir beetle
 Mc - California flatheaded borer
 Md - Flatheaded fir borer
 Ips - Pine engraver beetle
 Rm - Lodgepole needle miner
 Rw - Reproduction weevil
 Sv - Fir engraver

^{2/} LP - Lodgepole pine
 CP - Coulter pine
 JP - Jeffrey pine
 PP - Ponderosa pine
 SP - Sugar pine
 WF - White fir
 DF - Douglas-fir
 RF - Red fir

*Where maintenance control is recommended, the salvage of infested trees is advisable wherever it is possible. Also, where sanitation-salvage is recommended, maintenance control should be done on the portion of the area which has previously been covered by sanitation logging.

Table 2.--Continued

<u>Project Area</u>	<u>Location</u>	<u>Insect species</u> ^{1/}	<u>Host</u> ^{2/}	<u>Recommended Action*</u>
Mtn. House Burn	Yuba Co.	Db-Ips	PP	Cont'd surveillance; appraisal, salvage & control if needed.
Smith Burn	Stanislaus NF	"	"	"
Icehouse Burn	El Dorado Co.	"	"	"
Black Mtn.	Humboldt Co.	Md-Dp	DF	Salvage infested trees
E. Fork Campground	Humboldt Co.	Dp	DF	"
Black Bear Summit	Siskiyou Co.	Ips	PP	Salvage infested merchantable trees, treat infested un- merchantable trees.
Jones Burn	Trinity Co.	Ips-Db	PP-SP	Appraisal
Black Rock Mtn.	Trinity Co.	Ips-Db	PP	"
Hyampom	Trinity Co.	Ips-Db	PP	"
Black Rock and Peterson Mill	Sierra NF	Db-Ips	PP	"
<u>Areas requiring continued action</u>				
Silver Lake	Plumas Co.	Dm	LP	Chemical treatment
Military Pass	Siskiyou Co.	Dm	LP	Continue salvage
Joseph Creek	Modoc Co.	Dm	PP	Continue surveillance
Ft. Bidwell	Modoc Co.	Sv	WF	" "
Hat Creek Rim	Shasta-Lassen Co.	Ips-Db-Dj	PP-JP	Continue salvage
E.Plumas N.F.	Plumas Co.	Sv	WF	Continue surveillance
Lassen N.P.		Db-Ips-Dj-Dm	PP-JP SP-LP	Maintenance control
Stanislaus area	Tuolumne- Calaveras Co.	Tussock moth	WF	Continue surveillance. None found 1960.
Yosemite	Tuolumne- Mariposa Co.	Db-Dm	PP-SP	Maintenance control
Ordin Flat	Tuolumne Co.	Db-Ips	PP	Continue salvage

Table 2.--Continued

<u>Project Area</u>	<u>Location</u>	<u>Insect species^{1/}</u>	<u>Host^{2/}</u>	<u>Recommended Action*</u>
Yosemite (Tuol.Mdws)		Dm Rm	LP LP	Continue applied control Spray additional area summer 1961.
Deadman Creek	Mono Co.	Dj	JP	Maintenance control
Sentinel Mdws.	"	<u>Recurvaria</u> sp.	LP	Appraisal
Sierra N.F. area	Madera- Fresno Cos.	Db-Ips	PP	Continue salvage control where needed in areas treated in 1959.
Eshom area	Fresno Co.	Db-Ips	PP	Continue salvage & control on cooperative basis among landowners involved.
Sequoia N.P.	Fresno Co.	Db-Dm	PP-SP	Maintenance control.

Southern CaliforniaAreas requiring initial action

Palomar Mt.	San Diego Co.	Db-Ips	CP	Appraisal
Agua Tibia	San Diego Co.	Db-Ips	CP	Appraisal
Lost Valley	San Diego Co.	Db-Ips	CP	Appraisal
May Valley	Riverside Co.	Db-Ips Mc	CP JP	Sanitation-salvage
Browns Flat	Los Angeles Co.	Db-Ips	PP	Initiate maintenance control

Areas requiring continued action

San Jacinto	San Bernardino NF	Db-MC	JP-PP- CP	Year-round maintenance control
Barton Flats	"	Db-Dj	PP-JP	"
Corte Madera	Cleveland N.F.	Db-Mc	JP-PP- CP	Maintenance control
Cuyamaca Rancho State Park	Cleveland N.F.	Db-Mc Dm	JP-PP CP-SP	"
Alamo Mt.	Los Padres N.F.	Db-Mc Dm	PP-JP SP	"

Table 2.--Continued

<u>Project Area</u>	<u>Location</u>	<u>Insect species^{1/}</u>	<u>Host^{2/}</u>	<u>Recommended Action*</u>
Figueros Mt.	Los Padres N.F.	Db	PP-CP	Maintenance control
Grade Valley	Los Padres N.F.	Mc	JP	"
Charlton-Chilao & Barton Flats		Db	PP-CP	"
Crystal Lake	Angeles ["] N.F.	Db-Dj	PP-JP	"
Big Pines-Wrightwood	"	Mc-Ips	JP	"
Arrowhead-Crestline	San Bernardino N.F.	Dm-Db-Dj	JP-PP- CP	Year-round maintenance control
Laguna	Cleveland N.F.	Mc-Db	JP-CP	Maintenance control
Wrightwood	San Bernardino Co.	Mc	JP	Maintenance control
Winston Springs	Los Angeles	Mc-Dj	JP	Maintenance control